

LLL IIIIIIIIII 888888888888 RRRRRRRRRRRRRR TTTTTTTTTTTTTTT LLL
LLL IIIIIIIIII 888888888888 RRRRRRRRRRRRRR TTTTTTTTTTTTTTT LLL
LLL IIIIIIIIII 888888888888 RRRRRRRRRRRRRR TTTTTTTTTTTTTTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888888888888 RRRRRRRRRRRRRR TTT LLL
LLL IIIIIIII 888888888888 RRRRRRRRRRRRRR TTT LLL
LLL IIIIIIII 888888888888 RRRRRRRRRRRRRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888 BBB RRR RRR RRR TTT LLL
LLL IIIIIIII 888888888888 RRR RRR TTT LLL
LLL IIIIIIII 888888888888 RRR RRR TTT LLL
LLL IIIIIIII 888888888888 RRR RRR TTT LLL

FILEID**STRANASTR

K 8

STF
1-(
:
:
:

SSSSSSSS	TTTTTTTT	RRRRRRRR	AAAAAA	NN	NN	AAAAAA	SSSSSSSS	TTTTTTTT	RRRRRRRR
SSSSSSSS	TTTTTTTT	RRRRRRRR	AAAAAA	NN	NN	AAAAAA	SSSSSSSS	TTTTTTTT	RRRRRRRR
SS	TT	RR	RR	AA	NN	NN	AA	SS	RR
SS	TT	RR	RR	AA	NN	NN	AA	SS	RR
SS	TT	RR	RR	AA	NNNN	NN	AA	SS	RR
SS	TT	RR	RR	AA	NNNN	NN	AA	SS	RR
SSSSSS	TT	RRRRRRRR	AA	AA	NN	NN	AA	SSSSSS	RRRRRRRR
SSSSSS	TT	RRRRRRRR	AA	AA	NN	NN	AA	SSSSSS	RRRRRRRR
SS	TT	RR	RR	AAAAAAA	NN	NNNN	AAAAAAA	SS	RR
SS	TT	RR	RR	AAAAAAA	NN	NNNN	AAAAAAA	SS	RR
SS	TT	RR	RR	AA	NN	NN	AA	SS	RR
SS	TT	RR	RR	AA	NN	NN	AA	SS	RR
SSSSSSSS	TT	RR	RR	AA	NN	NN	AA	SSSSSSSS	RR
SSSSSSSS	TT	RR	RR	AA	NN	NN	AA	SSSSSSSS	RR

LL		SSSSSSSS
LL		SSSSSSSS
LL		SS
LL		SS
LL		SS
LL		SSSSSS
LL		SSSSSS
LL		SS
LL		SS
LL		SS
LLLLLLLL		SSSSSSSS
LLLLLLLL		SSSSSSSS

(2) 50
(3) 86
(4) 136

DECLARATIONS
STR\$ANALYZE_SDESC - Analyze string descriptor
STR\$ANALYZE_SDESC_R1 - Analyze string descriptor

```
0000 1 .TITLE STR$ANALYZE_SDESC - Analyze string descriptor
0000 2 .IDENT /1-004/ ; File: STRANASTR.MAR Edit: DG1004
0000 3 :
0000 4 :
0000 5 ****
0000 6 *
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0000 23 * SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.
0000 24 *
0000 25 *
0000 26 ****
0000 27 *
0000 28 *
0000 29 ++
0000 30 :FACILITY: General Utility Library
0000 31 :
0000 32 :ABSTRACT:
0000 33 :
0000 34 : This module contains routines which extract the length and
0000 35 : address of the first byte of a string from any supported
0000 36 : class of string descriptor.
0000 37 :
0000 38 :ENVIRONMENT: Runs at any access mode, AST Reentrant
0000 39 :
0000 40 :AUTHOR: R. Reichert, CREATION DATE: 2-NOV-1981
0000 41 :
0000 42 :MODIFIED BY:
0000 43 :
0000 44 :1-001 - Original. RKR 2-NOV-1981
0000 45 :1-002 - Use general mode addressing. SBL 30-Nov-1981
0000 46 :1-003 - Add support for class $0 string descriptors. DG 3-Oct-1983.
0000 47 :1-004 - Change class $0 string descriptors to SB. DG 27-Feb-1984.
0000 48 :--
```

0000 50 .SBTTL DECLARATIONS
0000 51 :
0000 52 : LIBRARY MACRO CALLS:
0000 53 :
0000 54 \$DSCDEF ; DSC\$- symbols
0000 55 \$\$\$DEF ; \$\$\$- symbols
0000 56 :
0000 57 : EXTERNAL DECLARATIONS:
0000 58 :
0000 59 : Prevent undeclared symbols from being automatically global.
0000 60 :
0000 61 .DSABL GBL
0000 62 .EXTRN STR\$ ILLSTRCLA ; Illegal string class
0000 63 .EXTRN LIB\$\$STOP ; to signal fatal error
0000 64 :
0000 65 : MACROS:
0000 66 :
0000 67 : NONE
0000 68 :
0000 69 : EQUATED SYMBOLS:
0000 70 :
0000 71 : NONE
0000 72 :
0000 73 : OWN STORAGE:
0000 74 :
00000000 75 .PSECT _STR\$DATA PIC, USR, CON, REL, LCL, NOSHR, -
0000 76 NOEXE, RD, WRT, LONG
0000 77 :
0000 78 : NONE
0000 79 :
0000 80 : PSECT DECLARATIONS:
0000 E1 :
00000000 82 .PSECT _STR\$CODE PIC, USR, CON, REL, LCL, SHR, -
0000 83 EXE, RD, NOWRT, LONG
0000 84 :

0000 86 .SBTTL STR\$ANALYZE_SDESC - Analyze string descriptor
 0000 87 :++
 0000 88 : FUNCTIONAL DESCRIPTION:
 0000 89 :
 0000 90 : Extracts length and address of 1st data byte from any supported
 0000 91 : class of string descriptor.
 0000 92 :
 0000 93 : CALLING SEQUENCE:
 0000 94 :
 0000 95 : STR\$ANALYZE_SDESC (DESC.rt.dx, LENGTH.ww.r, ADDR.wa.r)
 0000 96 :
 0000 97 : FORMAL PARAMETERS:
 0000 98 :
 0000 99 : DESC.rt.dx address of a string descriptor
 0000 100 : LENGTH.ww.r address of a word to receive the strings length
 0000 101 : ADDR.wa.r address of a longword to receive the address
 0000 102 : of the 1st data byte of the string.
 0000 103 :
 0000 104 :
 0000 105 : IMPLICIT INPUTS:
 0000 106 :
 0000 107 : NONE
 0000 108 :
 0000 109 : IMPLICIT OUTPUTS:
 0000 110 :
 0000 111 : NONE
 0000 112 :
 0000 113 : COMPLETION STATUS:
 0000 114 :
 0000 115 : NONE
 0000 116 :
 0000 117 : SIDE EFFECTS:
 0000 118 : Signals STR\$_ILLSTRCLA if invalid descriptor
 0000 119 :
 0000 120 :
 0000 121 :--
 0000 122 :
 0000 123 : Parameter displacements off AP
 0000 124 DESC = 4
 0000 125 LENGTH = 8
 0000 126 ADDR = 12
 0000 127 :
 0000 128 ENTRY STR\$ANALYZE_SDESC, ^M<IV> ; Entry point
 0000 129 MOVL DESC(AP), R0 ; address of descriptor
 0000 130 JSB G^STR\$ANALYZE_SDESC_R1 ; length ->R0
 0000 131 ; address ->R1
 0000 132 MOVW R0, @LENGTH(AP) ; length to callers variable
 0000 133 MOVL R1, @ADDR(AP) ; address to callers variable
 0000 134 RET ; Return to caller

50 04 AC 4000	0000 128	ENTRY STR\$ANALYZE_SDESC, ^M<IV>	;	Entry point
00000004	0002 129	MOVL DESC(AP), R0	;	address of descriptor
00000008	0006 130	JSB G^STR\$ANALYZE_SDESC_R1	;	length ->R0
0000000C	000C 131		;	address ->R1
08 BC 50 B0 0000	132	MOVW R0, @LENGTH(AP)	;	length to callers variable
0C BC 51 D0 0010	133	MOVL R1, @ADDR(AP)	;	address to callers variable
04 0014	134	RET	;	Return to caller

0015 136 .SBTTL STR\$ANALYZE_SDESC_R1 - Analyze string descriptor
0015 137 ++
0015 138 FUNCTIONAL DESCRIPTION:
0015 139
0015 140 Extracts length and address of 1st data byte from any supported
0015 141 class of string descriptor.
0015 142
0015 143 CALLING SEQUENCE:
0015 144
0015 145 STR\$ANALYZE_SDESC (DESC.rt.dx, LENGTH.wl.v, ADDR.wa.v)
0015 146
0015 147 FORMAL PARAMETERS:
0015 148
0015 149 DESC.rt.dx (Input in R0) address of a string descriptor
0015 150
0015 151 LENGTH.wl.v (Returned in R0) the strings length
0015 152
0015 153 ADDR.wa.v (Returned in R1) the address
0015 154 of the 1st data byte of the string.
0015 155 IMPLICIT INPUTS:
0015 156
0015 157 NONE
0015 158
0015 159 IMPLICIT OUTPUTS:
0015 160
0015 161 NONE
0015 162
0015 163 COMPLETION STATUS:
0015 164
0015 165 NONE
0015 166
0015 167 SIDE EFFECTS:
0015 168
0015 169 Signals STR\$_ILLSTRCLA if invalid string descriptor found
0015 170
0015 171 ;--

			0015	173	STR\$ANALYZE_SDESC_R1::	
			0015	174		
OF	51	04 A0	D0	0015	175	MOVL DSC\$A_POINTER(R0), R1 ; assume address of 1st byte
	00	03 A0	8F	0019	176	CASEB DSC\$B_CLASS(R0), #DSC\$K_CLASS_Z, #DSC\$K_CLASS_SB
			002D	001E	177 10\$:	.WORD CLASS_Z-10\$: 0 Z
			002D	0020	178	.WORD CLASS_S-10\$: 1 S
			002D	0022	179	.WORD CLASS_D-10\$: 2 D
			0020	0024	180	.WORD CLASS_V-10\$: 3 V (obsolete)
			0031	0026	181	.WORD CLASS_A-10\$: 4 A
			0020	0028	182	.WORD CLASS_P-10\$: 5 P (obsolete)
			0020	002A	183	.WORD CLASS_PI-10\$: 6 PI (obsolete)
			0020	002C	184	.WORD CLASS_J-10\$: 7 J (obsolete)
			0020	002E	185	.WORD CLASS_JI-10\$: 8 JI (obsolete)
			002D	0030	186	.WORD CLASS_SD-10\$: 9 SD
			0031	0032	187	.WORD CLASS_NCA-10\$: 10 NCA
			003F	0034	188	.WORD CLASS_VS-10\$: 11 VS
			0020	0036	189	.WORD CLASS_VSA-10\$: 12 VSA
			0020	0038	190	.WORD CLASS_UBS-10\$: 13 UBS
			0020	003A	191	.WORD CLASS_UBA-10\$: 14 UBA
			002D	003C	192	.WORD CLASS_SB-10\$: 15 SB
			003E	193		
			003E	194	CLASS_V:	: obsolete classes
			003E	195	CLASS_P:	
			003E	196	CLASS_PI:	
			003E	197	CLASS_J:	
			003E	198	CLASS_JI:	
			003E	199	CLASS_VSA:	: nonstring classes that fall in range
			003E	200	CLASS_UBS:	
			003E	201	CLASS_UBA:	
00000000'8F	DD	003E	202	ERROR: PUSHL #STR\$_ILLSTRCLA	: Illegal string class or	
		0044	203		: invalid length in classes	
00000000'GF	01	FB	0044	204 CALLS #1, G^LIB\$STOP	: A or NCA	
		0048	205		: signal-fatal error - no return	
		0048	206			
		0048	207	CLASS_Z:	: read like class _S	
		0048	208	CLASS_S:		
		0048	209	CLASS_D:		
		0048	210	CLASS_SD:		
		0048	211	CLASS_SB:		
50	60	3C	004B	212 MOVZWL DSC\$W_LENGTH(R0), R0	: length	
		05	004E	213 RSB	: return to caller	
		004F	214			
		004F	215	CLASS_NCA:	: assume its really contiguous	
		004F	216	CLASS_A:		
50	50	0C A0	D0	004F	217 MOVL DSC\$L_ARSIZE(R0), R0	: array size = length of string
	FFFF0000	8F	D3	0053	218 BITL #^FFFFFF0000, R0	: make sure < 2**16 - 1
	E2	12	005A	219 BNEQU ERROR	: else reject	
		05	005C	220 RSB	: return to caller	
		005D	221			
50	81	3C	005D	222 CLASS_VS:	: varying string	
		0060	223 MOVZWL (R1)+, R0	: length -> R0, R1 -> addr of		
		05	0060	224 RSB	: 1st data byte	
		0061	225		: return to caller	
		0061	226			
		0061	227	.END	: End of module STR\$ANALYZE_SDESC	

STR\$ANALYZE_SDESC Symbol table

- Analyze string descriptor

E 9

16-SEP-1984 00:34:25 VAX/VMS Macro V04-00
6-SEP-1984 11:16:11 [LIBRTL.SRC]STRANASTR

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(5)

STF
1-C

ADDR	=	0000000C		
CLASS_A		0000004F	R	03
CLASS_D		0000004B	R	03
CLASS_J		0000003E	R	03
CLASS_JI		0000003E	R	03
CLASS_NCA		0000004F	R	03
CLASS_P		0000003E	R	03
CLASS_PI		0000003E	R	03
CLASS_S		0000004B	R	03
CLASS_SB		0000004B	R	03
CLASS_SD		0000004B	R	03
CLASS_UBA		0000003E	R	03
CLASS_UBS		0000003E	R	03
CLASS_V		0000003E	R	03
CLASS_VS		0000005D	R	03
CLASS_VSA		0000003E	R	03
CLASS_Z		0000004B	R	03
DESC	=	00000004		
DSC\$A_POINTER	=	00000004		
DSC\$B_CLASS	=	00000003		
DSC\$K_CLASS_SB	=	0000000F		
DSC\$K_CLASS_Z	=	00000000		
DSC\$L_ARSIZE	=	0000000C		
DSC\$W_LENGTH	=	00000000		
ERROR		0000003E	R	03
LENGTH	=	00000008		
LIB\$STOP		★ ★ ★ ★ ★ ★	X	00
STR\$ANALYZE_SDESC		00000000	RG	03
STR\$ANALYZE_SDESC_R1		00000015	RG	03
STR\$ILLSTRCLA		★ ★ ★ ★ ★ ★	X	00

+-----+
! Psect synopsis !
+-----+

PSELECT name

Allocation PSECT No. Attributes

```

. ABS .
$ABSS
_STR$DATA
_STR$CODE      00000000 ( 0.) 00 ( 0.) NOPIC   USR    CON    ABS    LCL    NOSHR  NOEXE  NORD  NOWRT  NOVEC  BYTE
               00000000 ( 0.) 01 ( 1.) NOPIC   USR    CON    ABS    LCL    NOSHR  EXE    RD     WRT   NOVEC  BYTE
               00000000 ( 0.) 02 ( 2.) PIC     USR    CON    REL    LCL    NOSHR  NOEXE  RD     WRT   NOVEC  LONG
               00000061 ( 97.) 03 ( 3.) PIC     USR    CON    REL    LCL    SHR    EXE    RD     NOWRT  NOVEC  LONG

```

! Performance indicators !

Phase

Page faults	CPU Time	Elapsed Time
29	00:00:00.04	00:00:02.42
111	00:00:00.30	00:00:03.76
209	00:00:03.25	00:00:15.52
0	00:00:00.57	00:00:02.66
52	00:00:00.65	00:00:03.49
5	00:00:00.02	00:00:00.04
2	00:00:00.01	00:00:00.01
0	00:00:00.00	00:00:00.00
410	00:00:04.84	00:00:27.90

STR\$ANALYZE_SDESC
VAX-11 Macro Run Statistics

- Analyze string descriptor

F 9

16-SEP-1984 00:34:25 VAX/VMS Macro V04-00
6-SEP-1984 11:16:11 [LIBRTL.SRC]STRANASTR.MAR;1

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(5)

STF
1-C

The working set limit was 1050 pages.

27116 bytes (53 pages) of virtual memory were used to buffer the intermediate code.
There were 30 pages of symbol table space allocated to hold 562 non-local and 1 local symbols.
227 source lines were read in Pass 1, producing 15 object records in Pass 2.
9 pages of virtual memory were used to define 8 macros.

+-----+
! Macro library statistics !
+-----+

Macro library name

_S255\$DUA28:[SYSLIB]STARLET.MLB;2

Macros defined

5

604 GETS were required to define 5 macros.

There were no errors, warnings or information messages.

MACRO/ENABLE=SUPPRESSION/DISABLE=(GLOBAL,TRACEBACK)/LIS=LIS\$:STRANASTR/OBJ=OBJ\$:STRANASTR MSRC\$:STRANASTR/UPDATE=(ENH\$:STRANASTR)

: F

0213 AH-BT13A-SE
VAX/VMS V4.0

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